Q. CAN YOU DESCRIBE IN MORE DETAIL THE LINE CARDS THAT THE CLECS WISH TO "COLLOCATE" AND WHY YOU DO NOT VIEW THEM AS "COMPLETE" PIECES OF EQUIPMENT?

A. Yes. The type of Project Pronto NGDLC line card currently available from Alcatel, the manufacturer of the Litespan platform, is the ADSL Digital Line Unit ("ADLU") card. The ADLU card is inserted into a shelf within a channel bank in a complete NGDLC RT equipment unit. This ADLU card contains some of the electronic circuitry that enables the NGDLC RT to perform the various signal-conversion and multiplexing functions for an end user's ADSL signal. The ADLU card cannot perform any of these functions by itself, as it is only a piece-part or sub-component of the overall NGDLC RT equipment unit. To use an analogy, the ADLU card is similar to a gear within a wrist-watch. The gear is not the device that provides the time to the wearer of the watch, but instead, is only a piece-part of the watch, and merely works in combination with the rest of the parts of the watch to keep time.

Q. ASIDE FROM THE LACK OF STAND-ALONE CAPABILITY, DOES A LINE CARD MEET THE ACT'S AND THE FCC'S REQUIREMENT THAT COLLOCATED EQUIPMENT BE NECESSARY FOR INTERCONNECTION OR ACCESS TO UNEs?

A. Not in my opinion. Placement of an ADLU card into a Pronto NGDLC RT would not provide a CLEC with access to UNEs currently available at an RT, nor would it provide for interconnection between Ameritech Illinois' network and a CLEC's network for the mutual exchange of traffic.

Q. WHICH UNEs CAN BE ACCESSED BY COLLOCATING IN AN RT?

A. There are only two UNEs that may be accessible to a CLEC at an RT site. The first is unbundled dark fiber. Unbundled dark fiber is available at an RT site only if the RT is fed by fiber cable, and if sufficient fiber strands are spare and unlit. The second is unbundled copper distribution subloops, including the full subloop or just the high frequency portion of the subloop. These unbundled subloops are available at an RT only if the CLEC's collocated equipment is cabled to the nearest cross-connect access point to those subloops (e.g., the SAI cabinet), or to the "engineering controlled splice" referred to in SBC's commitments attached to the FCC's Project Pronto Order.[31]

Q. CAN A CLEC OBTAIN ACCESS TO EXISTING UNEs AVAILABLE AT AN RT BY PLACING AN ADLU CARD INTO PRONTO NGDLC EQUIPMENT?

A. No. The ADLU card is not capable of providing access to any UNE. As I previously explained, the ADLU card is only a sub-component of the complex system of electronics and software that collectively make up the complete functionality of a NGDLC RT. There are no means to physically cross-connect the ADLU card to any UNE at the RT; instead, it can only be physically inserted into the rest of the NGDLC RT.

Q. CAN A LINE CARD PROVIDE FOR THE "MUTUAL EXCHANGE OF TRAFFIC"?

A. No. A line card by itself is not a switch nor is it capable of providing a switching functionality. In the case of the ADLU card, the card itself splits the voice and data signal and then, in conjunction with the entire NGDLC system packetizes the data signal for transport to the central office. The actual switching, routing and aggregation of the data traffic from each RT site is performed by the OCD device and is performed neither by the line card itself nor the entire NGDLC system.

Q. ARE THERE OTHER REASONS WHY THE LINE CARD SHOULD NOT BE COLLOCATED BY THE CLECs?

A. Yes. These other reasons include adverse impacts on (1) the usable capacity of the NGDLC RTs, (2) service provisioning, and (3) maintenance and repair. These impacts are further addressed in the testimony of Mr. James Keown and Mr. Derrick Hamilton.

[31] Project Pronto Order, Appendix A, paragraph 5.

XII. REPLY TO COMMISSIONER SQUIRES'S QUESTIONS

Q. WHAT QUESTIONS RAISED BY COMMISSION SQUIRES WILL YOU BE ADDRESSING IN YOUR TESTIMONY?

A. I will be addressing questions 1(A) (in part), 2, 3 (A) (i), 5, 6 (A) and (C), and 8 (A) and (B).

Q. PER COMMISSIONER SQUIRES'S QUESTION 1(A), PLEASE DISCUSS THE RULE 317(b)(2) FACTORS AS THEY BEAR ON EACH OF THE COMPETITIVE ALTERNATIVES OUTSIDE THE ILEC's NETWORK.

A. The factors in FCC Rule 317(b)(2) (47 C.F.R. 51.317(b)(2)) are analyzed to help determine whether alternatives to a proposed UNE are "available as a practical, economic, and operational matter." Application of these factors to the evidence being presented by all Ameritech Illinois' witnesses is largely a matter for legal briefs, but I will attempt to concisely address these factors from a non-legal, factual and policy perspective here with respect to the CLEC's competitive alternatives of self-provisioning, DSLAM collocation, and use of non-DSL technologies.

Cost.

1. Self-provisioning. Not having access to CLECs' cost structures or negotiations with equipment vendors, it is impossible to answer the cost question from the CLECs' perspective. From Ameritech Illinois' perspective, however, "unbundling" the Pronto DSL facilities would create significant new costs for Ameritech Illinois that would have to be recovered from CLECs through the "UNE" rates. Of course, the wholesale Broadband Service would offer the benefits of UNE pricing without the need to pass along to CLECs all of the additional costs that Ameritech Illinois would incur to actually "unbundle" Project Pronto DSL facilities (if it deployed them at all).

2. DSLAM Collocation. Like self-provisioning, collocation of a DSLAM is largely an up-front cost that is difficult to compare to the monthly recurring costs of "UNEs" or line card "collocation" over the long run.

3. Other Technologies. As noted above, both up-front and incremental deployment costs of wireless/satellite technologies are generally much lower than the costs for cable modem and DSL service.

Timeliness.

1. Self-provisioning. It is difficult to predict how quickly a CLEC could use self-provisioning to enter or expand its presence in the advanced services marketplace, but the basic time to obtain equipment from vendors should be the same for ILECs and CLECs. For CLECs that have not yet started their own deployment, the wholesale Broadband Service would offer an instant means of reaching a large number of new DSL customers quickly.

2. DSLAM Collocation. The standard provisioning interval for the wholesale Broadband Service is three days, which would inevitably be faster than DSLAM collocation. Because the processes and intervals for provisioning Pronto "UNEs" are unknown, I cannot compare them to DSLAM collocation at this time.

3. Other Technologies. As noted above, deployment of wireless of satellite service, both initially and incrementally, is generally much faster than for DSL or cable modem service.

Quality.

1. Self-provisioning. Self-provisioning would give CLECs substantially more control over the quality of service they provide than "unbundling" would. Use of the wholesale Broadband Service, rather than individual Pronto DSL "UNEs," would also help the CLEC ensure it received the exact same service quality as any Ameritech Illinois customer. For a

discussion of the adverse impact on quality of service that would result from "unbundling" the Pronto DSL facilities, see Mr. Hamilton's direct testimony.

2. DSLAM Collocation. I expect CLECs will comment on any quality-of-service issues raised by DSLAM collocation. From Ameritech Illinois' perspective, we already know how to deal with DSLAM collocation and provide quality unbundled loops and subloops; if, however, we had to provide all the new "UNEs" described in the Order, the adverse quality-of-service effects discussed by Mr. Hamilton would arise.

3. Other Technologies. I do not know what quality-of-service issues CLECs would face in providing wireless or satellite advanced services.

Ubiquity.

1. Self-provisioning. Self-provisioning would allow the CLEC to determine exactly where it wants to deploy facilities to provide advanced services. In light of their apparent business models, most CLECs are likely to care less about ubiquity and more about being able to target population centers and business centers. The Broadband Service would offer instant ubiquity (at least the same ubiquity that every other CLEC has access to) if the CLEC wanted to use it either as a primary means of providing service or as a way to supplement its self-provisioned service when it expands into new territory.

2. DSLAM Collocation. The CLECs will likely argue that DSLAM collocation does not allow ubiquitous service because of space limitations in Ameritech Illinois' offices. SBC's ILECs committed in the Pronto Waiver Order, however, to take proactive steps to minimize cases where DSLAM collocation would be unavailable. Moreover, mandatory "unbundling" of Pronto DSL facilities would lead to its own ubiquity problems, which would be beyond Ameritech Illinois' control and could be far more severe. I am referring specifically to the fact that a CLEC that leases one or more Permanent Virtual Paths (PVPs) as UNEs would

immediately monopolize from one-third to all of the DSL capacity in any given remote terminal, as well as the other stranded capacity impacts discussed by Mr. Keown and Mr. Boyer. By leasing PVPs, just a few CLECs could quickly make several remote terminals "off limits" to other CLECs and prevent those other CLECs form serving that area covered by that terminal. By contrast, allowing CLECs to use the wholesale Broadband Service rather than "unbundled" PVPs would avoid limitations on ubiquitous service by allowing Ameritech Illinois ensure all CLECs get the most efficient use of the Pronto DSL equipment and thus maximizing its capacity for serving all customers.

3. Other Technologies. Wireless and satellite services offer good ubiquity of service, aside from sight-line problems that arise in some cases. Sprint, for example, claims that its facility on top of the Sears Tower lets its wireless advanced service reach 95% of residences within 33 miles. Similarly, providing satellite service is like using a wireless tower that reaches miles into the sky and thus allows multi-state or nationwide coverage footprint.

Impact on Network Operations.

1. Self-provisioning. Mr. Hamilton discusses the impact on Ameritech Illinois' network operations of an "unbundling" requirement for Pronto DSL facilities. Those adverse impacts could be avoided if CLECs relied on self-provisioning or used the wholesale Broadband Service.

2. DSLAM Collocation. DSLAM collocation, under current rules and limitations, would not appear to have significant adverse impacts on Ameritech Illinois' network operations.

3. Other Technologies. Use of wireless or satellite technologies by CLECs should not affect Ameritech Illinois' network operations.

Q. QUESTION 1(C) SAYS: PLEASE COMMENT ON EACH OF THE FACTORS LISTED IN SECTION 51.317(b)(3) [OF FCC RULE 317].

A. I will comment on these factors individually, but once again I am speaking as a non-lawyer; Ameritech Illinois' attorneys will certainly apply the evidence to these factors in the post-hearing briefs.

Promoting the rapid introduction of competition. The Pronto "unbundling" requirements would not promote the rapid introduction of competition nearly as well as the wholesale Broadband Service. That option provides all the price benefits of unbundling without the additional responsibilities on the ILEC and on the CLEC to connect and manage its own equipment. "Unbundling," by contrast, would both delay competition and the widespread availability of advanced services (by making it uneconomic for Ameritech Illinois to deploy the Pronto DSL facilities) and, even if those facilities were deployed, would create such operational difficulties as to slow down competition and the availability of advanced services to new customers.

Promoting facilities-based competition, investment, and innovation. I discussed above why Pronto "unbundling" would not promote competition, and the reasons why it would discourage investment and innovation are set forth earlier in the testimony of Mr. Ross Ireland and others. An "unbundling" requirement would merely perpetuate the asymmetric regulation that already exists between DSL and other advance service technologies, thereby removing competitive pressure on cable modem service providers to invest and innovate.

Promoting reduced regulation. The Pronto "unbundling" requirements obviously would not lead to reduced regulation, as they nearly double the prior list of all UNEs. Promoting reduced regulation is especially important in the emerging advanced services marketplace, and applying inapposite labels like "unbundling" and "collocation" to equipment about to be deployed for that market is more pro-regulatory than pro-competition.

Providing certainty regarding the availability of an element. I am not sure that "unbundling" Pronto DSL equipment would lead to more certainty, as the FCC continues to examine these very same issues and could reach an opposite conclusion the day after this Commission issues a decision. There also would be the practical problem that the pieces of the Pronto DSL network all need one another to function, and the "unbundling" of any one piece might therefore affect when and where other alleged "UNEs" were available.

Is the proposed requirement administratively practical to apply? No. As Ameritech Illinois' other witnesses make clear, "unbundling" Project Pronto leads to many novel and complex technical questions that the Commission may ultimately have to resolve, and the technology is evolving all the time.

Q. PLEASE COMMENT ON THE APPROPRIATENESS OF THE NGDLC UNES THAT WERE PREVIOUSLY DEFINED IN DOCKET NO. 00-393. (QUESTION #2)

A. As outlined above, none of the new UNEs ordered in Docket 00-393 are appropriate. I specifically address each new UNE as ordered by the Commission in Sections VI – X of my testimony. As explained, there are numerous technical feasibility and capacity issues resulting from the establishment of such new UNEs that make these elements inappropriate from a technical perspective. Further, because a majority of the Project Pronto network architecture involves packet switching it is inappropriate from a policy perspective to order the establishment of such new UNEs. As explained in Section VI of my testimony Ameritech Illinois network, under its proposed Project Pronto deployment, would not meet the narrow set of circumstances under which Ameritech Illinois would be obligated to provide CLECs with access to unbundled packet switching.

Q. PLEASE COMMENT ON THE UNEs THAT SHOULD BE REQUIRED, INCLUDING A DISCUSSION ON WHETHER THE BROADBAND OFFERING COULD QUALIFY AS A UNE. (QUESTION #2)

A. As stated in Section VI of my testimony, the Project Pronto network architecture should not be unbundled as a general matter for at least three reasons: (1) the Project Pronto network architecture cannot be unbundled technically because of the manner in which the components of the architecture interconnect and interwork with one another, (2) the Project Pronto network architecture involves the use of packet switching, which as stated previously, Ameritech Illinois network does not met the narrow set of requirements under which packet switching should be unbundled, and (3) CLECs have not satisfied the impair standard under which the unbundling of the Project Pronto architecture could be required.

Some portions of the Project Pronto architecture are already available to CLECs as UNEs – most notably copper sub-loops accessible from the SAI to the NID. These UNEs are mandated by the FCC UNE Remand Order. However, beyond the copper facilities the Project Pronto network (from the NGDLC equipment through the OCD) involves packet switching components that cannot be physically separated and offered as individual stand-alone elements.

Strictly from a technical perspective, taking the packet switching and impairment issues out of the equation, of these elements the only technically feasible arrangement that Ameritech Illinois could provide to CLECs would be the end-to-end Broadband Service offering.

Q. PLEASE PROVIDE A DETAILED ANALYSIS ON THE FOUR CRITERIA FOR UNBUNDLED PACKET SWITCHING. (QUESTION #3A)

A. Section VI of my testimony specifically references the four criteria established by the FCC under which Ameritech Illinois may be required to offer CLECs access to unbundled packet switching and further addresses how such criteria are not met with Ameritech Illinois' proposed Project Pronto deployment.

Q. IS IT A TRUE STATEMENT THAT WHEREVER NGDLC IS DEPLOYED, NO COPPER IN THAT AREA CAN SUPPORT DSL SERVICES? (QUESTION #3Aii)

A. No. Generally, ADSL service cannot be provided beyond a distance approximately 18 kft from a DSLAM. However, other forms of xDSL, such as IDSL may be utilized to provide a high bandwidth DSL service to customers beyond the traditional 18 kft barrier. However, IDSL is limited to 144 Kbps and as such does not provide the quality and speed of service as a standard ADSL service enabled by Project Pronto.

Additionally, Ameritech Illinois planned Project Pronto deployment would not only involve the placement of RTs at the 18 kft barrier -- but would also involve the placement of RTs to end users residing between 12-18 kft from a serving wire center. The overall goal of the Project Pronto deployment is that where deployed, the copper portion of end users loops (whether measured from the central office or from the RT site) will be no greater than 12 kft in length. Thus, some RTs will be placed in location from 12-18 kft to effectively shorten those loops to 12 kft in length as well as locations beyond the 18 kft barrier. In those locations between 12-18 kft, traditional forms of xDSL could be provided using standard CO based DSLAMs. Further, because the Project Pronto deployment is an overlay network, in locations 12-18 kft from a wire center where Project Pronto is deployed, those copper facilities will remain available for a CLECs use after the placement of the Pronto RT sites.

Q. QUESTION 5 SAYS: *D.C. COURT DECISION:* PLEASE COMMENT ON THE IMPACT, IF ANY, THE D.C. COURT DECISION IN THE ASCENT CASE[32] HAS ON THE FCC *PROJECT PRONTO WAIVER ORDER* AND ASSOCIATED COMMITMENTS. WILL AMERITECH-ILLINOIS CONTINUE TO PROVIDE ADVANCED SERVICES VIA AN ADVANCED SERVICES AFFILIATE?

A. It is my understanding that the ASCENT case found that one aspect of the FCC's SBC/Ameritech Merger Conditions was invalid. Under the terms of the Merger Conditions, this court decision creates the possibility for SBC/Ameritech to decide to operate under a set of (non-structural safeguards rather than the structural separation requirements specified in the Merger Condition. SBC has been studying the complex issues associated with whether to continue under the present separate subsidiary arrangement or to operate under non-structural safeguards as to the timing or degree of integration, or even whether to integrate at all. One of our key factors in this ongoing assessment is to determine how the quality of the customer's DSL experience is affected by the present structure, as well as the interests of our shareholders. SBC has not yet made its final decision. The earliest that the advanced services affiliate(s) could become an office or division of the ILEC(s) is January 9, 2002.

As far as the Project Pronto Order, its terms provide that:

> "These provisions apply in the context of Advanced Services and will remain in effect so long as SBC/Ameritech is required to provide Advanced Services through a separate Advanced Services affiliate in the relevant state under Paragraph 12 of the SBC-Ameritech Merger Conditions."

Q. CAN AND/OR SHOULD THE COMMISSION TREAT ADLU CARDS AS PART OF THE LOOP FOR UNBUNDLING PURPOSES? (QUESTION #6A)

A. No. As explained in the UNE Remand Order, the FCC defines a local loop as a "transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end user customer premise, including inside wire owned

[32] U.S. Court of Appeals For the District of Columbia Circuit; No. 99-1441; Association of

by the incumbent LEC."[33] The definition also includes "all features, functions, and capabilities" of the loop, including "attached electronics." However, the FCC expressly excepted attached electronics "used in the provision of Advanced Services" from its definition of the local loop.[34] Furthermore, the FCC Project Pronto order found that the ADLU card was in fact the functional equivalent to Advanced Services equipment in the FCC Project Pronto order.[35]

As defined by the FCC, the local loop originates at a distribution frame, ordinarily the Main Distribution Frame (MDF) at the serving central office. In fact, in an order issued just one month after the UNE Remand Order, the FCC found that "all telecommunications services using the local loop are connected, directly or indirectly to the MDF."[36] The basis of this definition is that access to the line side of the local switch is typically provided at the Main Distribution Frame. The line side of the local switch typically refers to the individual end user copper facility, that when cross-connected to a local switch port provides a telecommunications service. Thus, the MDF provides access to each individual line.

However, an xDSL service as provisioned over the Project Pronto architecture is fundamentally different; there is no distribution frame that provides access to an individual line. As stated previously, the CLECs point of access to the Project Pronto network architecture is via the OCD. As outlined in Section III of my testimony the OCD serves to

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Communications Enterprises v. Federal Communications Commission, et al. Decided January 9, 2001.

[33] 47 C.F.R. § 51.319(a)(1); see Third Report and Order and Fourth Notice of Proposed Rulemaking, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, 15 FCC Rcd 3696 (1999) ("*UNE Remand Order*").

[34] 47 C.F.R. § 51.319(a)(1) (emphasis added).

[35] FCC 00-336, para. 14.

[36] Third Report and Order in CC Docket No. 98-147, Fourth Report and Order in CC Docket No. 96-98, Deployment of Wireline Services Offering Advanced Telecommunications Capability, 14 FCC Rcd 20912, ¶ 65 (1999).

route and aggregate traffic from each RT site to an individual CLEC's leased port on the OCD. This is provided at either a DS3 or an OC-3c level. With this architecture, a single end user line cannot be accessed at the OCD port. Therefore, the Project Pronto architecture does not provide a individual local loop facility between a single end user and a distribution frame. The "packetized" representation of these individual end user's DSL services exist within the OC-3c transport facility and the OCD only as virtual circuits, to which there is no physical, individual access.

Q. COMMISSIONER SQUIRES ALSO MENTIONS AS PART OF THIS QUESTION THAT "WITHIN ITS UNE COST STUDIES, AMERITECH INCLUDES THE COST OF LINE CARDS AS AN INPUT TO THE UNE LOOP, IDENTICAL TO HOW IT TREATS FIBER AND DISTRIBUTION CABLE." IS THIS CORRECT AND HOW IS THE PROJECT PRONTO NETWORK ARCHITECTURE DIFFERENT FROM THIS SITUATION?

A. While this may be the case in relation to traditional forms of DLC for the provision of voice service, the specific line cards at issue in this proceeding are the ADLU card and/or xDSL capable line cards placed within the ATM portion of an NGDLC system. As addressed in Section VI of my testimony, these line cards in conjunction with the entire NGDLC system provide the functional equivalent to a DSLAM and as noted below attached electronics (such as DSLAMs) were precluded from the definition of a loop in the FCC UNE Remand order.

Q. AS STATED IN COMMISSIONER SQUIRES'S QUESTION, 47 C.F.R. SECTION 51.319 PROVIDES FOR AN EXCEPTION TO ATTACHED ELECTRONICS FOR THOSE ELECTRONICS USED FOR THE PROVISION OF ADVANCED SERVICES, SUCH AS DIGITAL SUBSCRIBER LINE ACCESS MULTIPLEXERS. DOES THE ADLU CARD QUALIFY FOR THIS EXCEPTION? (QUESTION #6C)

A. Yes. As stated in Section VI of my testimony, in its Project Pronto Order, the FCC found that the Project Pronto NGDLC RT and the ADLU card is functionally equivalent to a DSLAM, and that the Project Pronto OCD is ATM switching equipment. Further, the FCC found in its UNE Remand Order that this type of equipment is packet switching equipment.

Q. DESCRIBE IN DETAIL EVERY TECHNICALLY FEASIBLE POINT OF INTERCONNECTION OR ACCESS TO SUB-COMPONENTS WITHIN THE NGDLC AMERITECH ILLINOIS IS DEPLOYING? (QUESTION #8A)

A. Given Ameritech Illinois planned NGDLC deployment, there would not be any points of interconnection and/or access to the sub-components of the NGDLC system within an RT site. As mentioned in Section VI of my testimony, due to the interconnection and interworking of the piece parts of the system it is not technically feasible and/or practical to provide CLECs physical access and/or interconnection to the sub-components of the NGDLC system. Further, as addressed in Section VII of my testimony sub-loops are not generally accessible within RT sites. As outlined in Section III of my testimony and in several attachments illustrating Ameritech Illinois planned NGDLC architecture, the copper facilities are spliced directly to the backplane of the NGDLC system, which then converts the data traffic into a packets for transport over a packet switched network consisting of the NGDLC RT and the OCD in the serving wire center. Neither of these two devices could be used in the absence of the other portions of the packet switched network.

Q. ARE THERE ANY TECHNICALLY FEASIBLE POINTS OF ACCESS TO THE PROJECT PRONTO ARCHITECTURE OUTSIDE OF THE NGDLC?

A. Yes. As mentioned, the OCD device provides CLECs the ability to access the end-to-end ADSL service provisioned over this architecture. Also, for CLECs wishing to access sub-loops (whether copper and/or optical) and/or dark fiber from their physical equipment (e.g. DSLAMs or other equipment whether collocated or placed in a CLEC structure), CLECs have the capability to access such sub-loops at the SAI and/or by requesting that SBC construct the Engineering Controlled Splice ("ECS") as outlined in the direct testimony of Mr. Mark A. Welch.

Q. IS IT TECHNICALLY FEASIBLE TO CROSS-CONNECT FROM THE CENTRAL OFFICE FIBER DISTRIBUTION FRAME TO A CLEC COLLOCATED ATM SWITCH, THEREBY ALLOWING A CLEC TO BYPASS THE AMERITECH ILLINOIS OWNED OCD PORT?

A. Not with Ameritech Illinois' planned NGDLC deployment. As is outlined in Section III of my testimony outlining the overall NGDLC architecture, each NGDLC RT system utilizes one packet based OC-3c fiber transport facility from the RT site to the OCD in the serving wire center. Within this OC-3c facility all end user services (for all ADSL providers) are transported as Permanent Virtual Circuits ("PVCs"). The OCD device is the necessary electronics within the central office to route and aggregate the incoming packets from each end user to the provider of their service. Therefore, a CLEC could not gain access to its traffic provisioned over the NGDLC system without an OCD port.

It is, as a general matter, technically feasible to cross-connect a fiber optic facility from the Fiber Distribution Frame ("FDF") to a CLEC-collocated ATM switch. The problem with providing this function with the NGDLC architecture is that there is only one OC-3c deployed for data traffic per RT site and this facility is a shared facility. Thus, if this fiber were terminated to a CLEC collocation arrangement it would make it technically impossible to provide any other service providers access to that particular NGDLC RT. In effect this would allow one service provider to monopolize all traffic from a given NGDLC site and adversely impact competition to that serving area.

However, that does not preclude a CLEC from deploying their own Project Pronto-like architecture and terminating their own "dark fiber" or other optical facilities from the FDF directly to their collocation arrangement. For example, as mentioned previously in my testimony, a CLEC could place their own DSLAM in the loop portion of the network (either collocated at an Ameritech Illinois RT site where space is available or through construction of a CLEC owned location) and obtain access to dark fiber and/or optical sub-loops where available for transport from the DSLAM location to the CLECs ATM switch within their collocation in a serving wire center.

Q. ARE THERE ANY OTHER TECHNICALLY FEASIBLE WAYS TO BYPASS THE ILEC PACKET SWITCHING FUNCTION?

A. There is no technically feasible means to bypass the ILEC packet switching function when a CLEC utilizes ADLU cards placed within the NGDLC architecture. As mentioned the ADLU cards are placed in the ATM (packet switched) portion of the Litespan system. Thus, there is no means to use the integrated end-to-end NGDLC architecture to provide DSL service lacking the packet switched portion of the Litespan system.

It is possible to utilize the non-packet switched portion of the Litespan system to provide transport from the RT site to the serving wire center. To explain, the Time Division Multiplexed ("TDM") portion of the Litespan 2000 system does provide the capability for Ameritech Illinois to provide a DS1 transport facility from the RT site to the serving wire center.

In such instance as a CLEC collocated their own physical equipment (e.g. DSLAM) in the loop portion of the network it is technically possible for Ameritech Illinois to provide the CLEC a DS1 from this portion of the Litespan to provide transport from the RT site to the serving wire center. This is done by placing a DS1 card (or HDSL card) in one of the voice channel banks in the Litespan system. However, this function would not be performed in the ATM (packet switched) portion of the Litespan system. Additionally, this DS1 would be considered nothing more than a high capacity sub-loop that is already provided to CLECs today by Ameritech Illinois. As mentioned above, the Project Pronto deployment does not preclude a CLEC from placing their own DSLAM in the field and obtaining access dedicated to optical sub-loops (such as the DS1 provisioned over the TDM portion of the Litespan) and/or dark fiber for transport from this location to that CLEC's central office collocation arrangement.

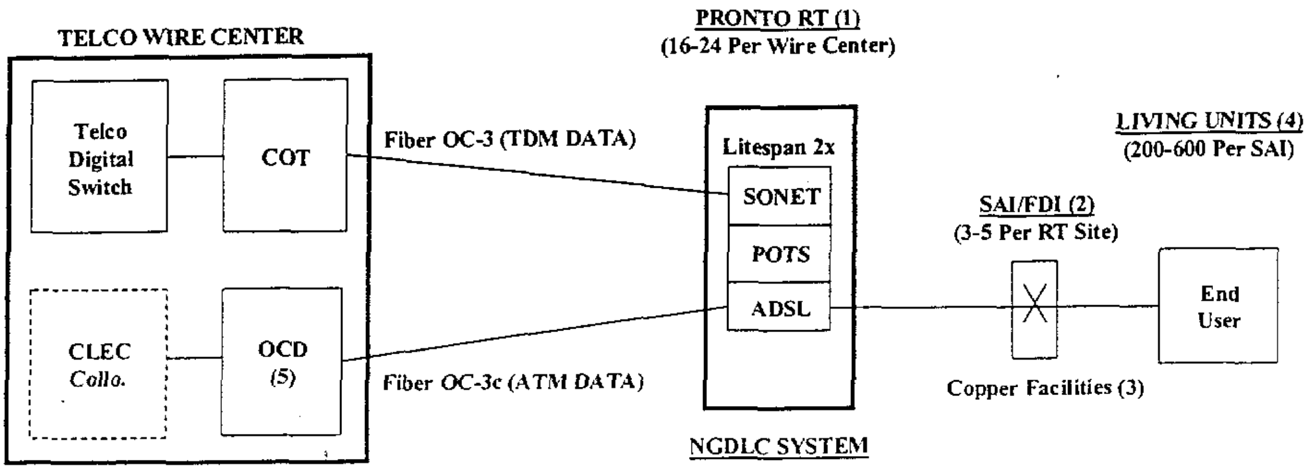
How a CLEC may obtain access to these facilities is further addressed in the Direct Testimony of Mark A. Welch.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY ON REHEARING?

A. Yes.

Schedule CJB-1

Diagram: High Level Project Pronto Architecture



Description:

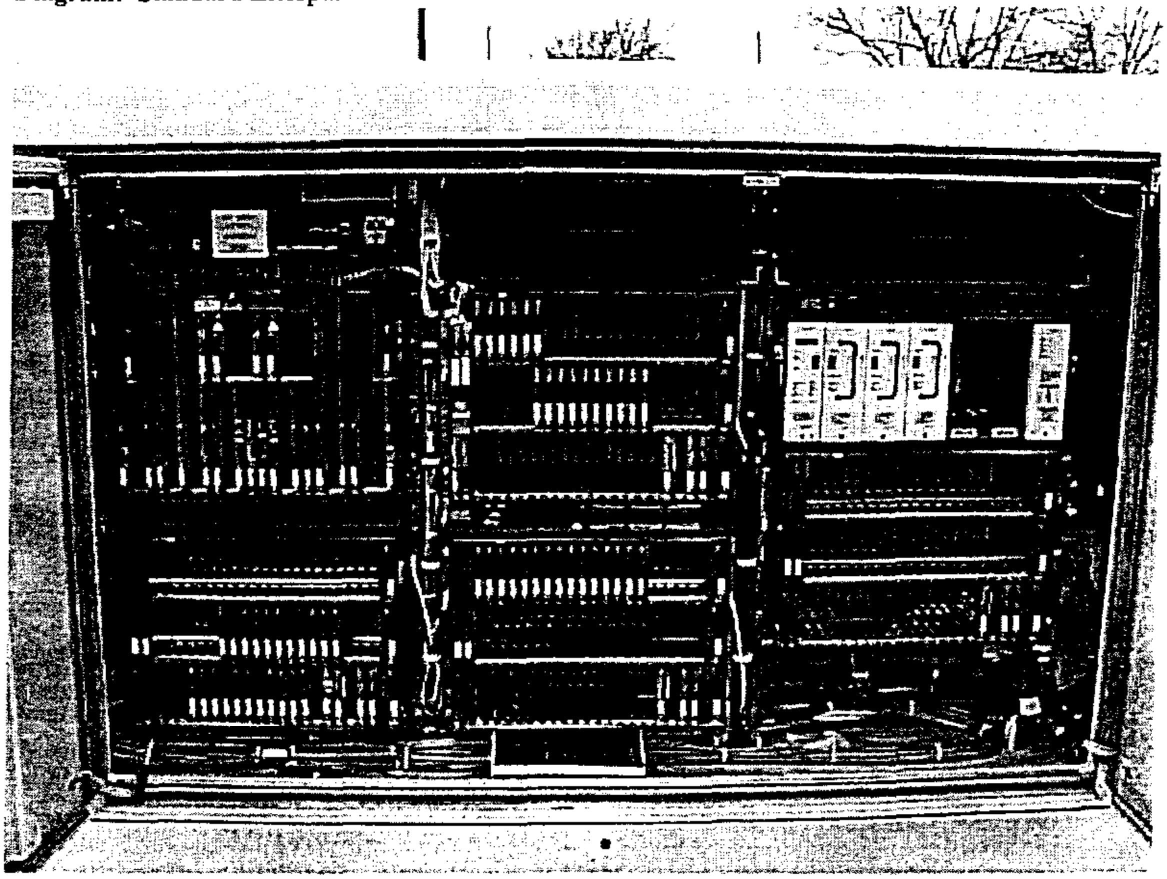
This diagram illustrates the high level Project Pronto architecture. In terms of the overall deployment of Project Pronto, there are two critical elements – those being the OCD and the NGDLC system. In a typical wire center, as illustrated above, one OCD will be placed. Subtending that OCD will typically be 16-24 Remote Terminal ("RT") sites each containing an NGDLC system (in most instances the Alcatel Litespan 2000). Subtending each RT location will typically be 3-5 Serving Area Interface ("SAI") locations which subsequently serve "living units" or end user locations. Each SAI will typically serve anywhere from 200-600 living units. In total this architecture has the potential to serve upwards of 72,000 living units per wire center (calculated by taking 24 RT sites per wire center times 5 SAIs per RT site times 600 living units per SAI) or as few as 9,600 living units (taking 16 RTs times 3 SAIs times 200 end users). The most common RT deployment being used by SBC with Project Pronto is a cabinet configuration – which is illustrated in the following attachment to my testimony.

In order to provision an ADSL service over this architecture a standard copper facility (analogous to a telephone line) is used to transport both voice and data from the end user customer premises to the NGDLC system placed within the RT site. This copper facility terminates on the backplane of the NGDLC system and is subsequently routed to a slot in a channel bank. A line card placed within the slot corresponding to that end users line serves to split the data and voice traffic. Additionally, this line card, in conjunction with the entire NGDLC system (including common control cards and software), provides the xDSL (in this ADSL) service functionality to that particular end user's line. Subsequently, the data traffic is "packetized" and transported over a packet switched Asynchronous Transfer Mode ("ATM") based facility. The voice traffic is also multiplexed, however in contrast to the data traffic, the voice is transported across a standard SONET based Time Division Multiplexed ("TDM") facility.

Within the serving wire center, the ATM based facility terminates in a device referred to as the Optical Concentration Device ("OCD"). The OCD aggregates incoming data traffic from multiple RT sites to the appropriate CLEC providing the service. In total, the OCD device and NGDLC provide the equivalent to packet switching of the data traffic. In contrast, the voice traffic terminates in the Central Office Terminal ("COT"). From the COT the voice traffic is either routed directly to the Ameritech-Illinois Class 5 switch to provide voice dial tone and/or can be routed to a CLEC collocation arrangement for the provision of a standard unbundled voice grade loop.

Schedule CJB-2

Diagram: Standard Litespan 2000 Cabinet



Description:

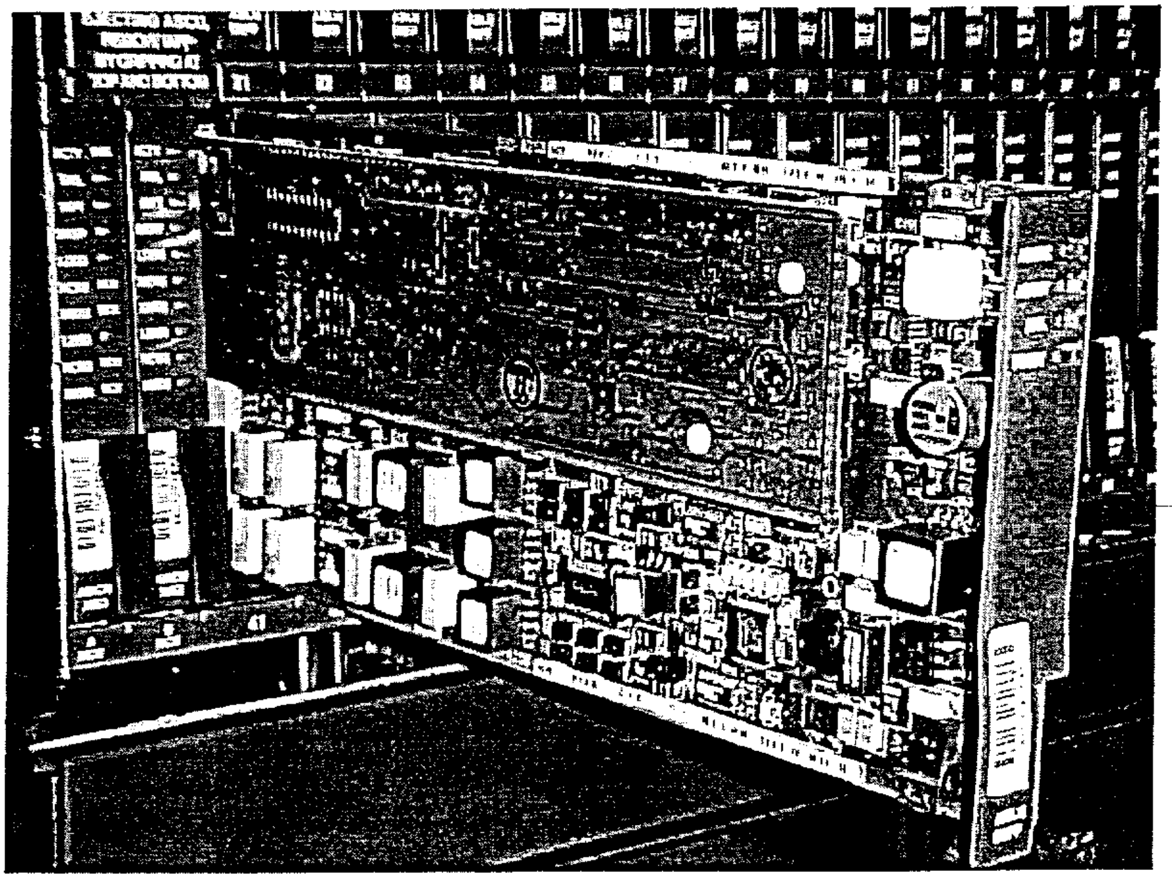
This photograph is of a Litespan 2000 system deployed in Texas. The configuration illustrated above is a standard Litespan cabinet (referred to as the Litespan 2016). As is shown in this photograph, line cards are placed in slots within channel banks placed within this cabinet to provide DSL service. In the Litespan 2016 cabinet a maximum of nine (9) channel banks can be placed. Of these, due to powering and spectral interference problems with standard voice service, three (3) can be fully utilized to provide xDSL service. The remaining 6 channel banks are dedicated to POTS only service.

Each channel bank consists of 56 slots for the placement of line cards. Thus, in a fully loaded cabinet, there would be capacity to serve three channel banks times 56 slots or 168 total slots worth of DSL traffic. As is referenced in my testimony, the only line card currently available for use with this system that provides xDSL service is the ADSL Digital Line Unit ("ADLU") which provides an ADSL service functionality. The ADLU is a combination voice and data card – which means it has the capability to provide both voice and data to an end user. At the present time, the ADLU card is a two-port card – meaning that it can provide two combined ADSL/POTS services per card. Forward looking, pending vendor enhancements, the ADLU card will be a four (4) port card. Thus, a standard cabinet will be capable of serving 168 slots times 4 ports per card or 672 ADSL customers.

In addition to the ADLU card, common control cards referred to as the ATM Bank Control Unit ("ABCU") cards are placed in the system to enable the packet switching and/or DSLAM like functionality. The ABCU and ADLU cards, in conjunction with the entire system provide this functionality.

Schedule CJB-3

Diagram: Standard Litespan ADLU Line Card

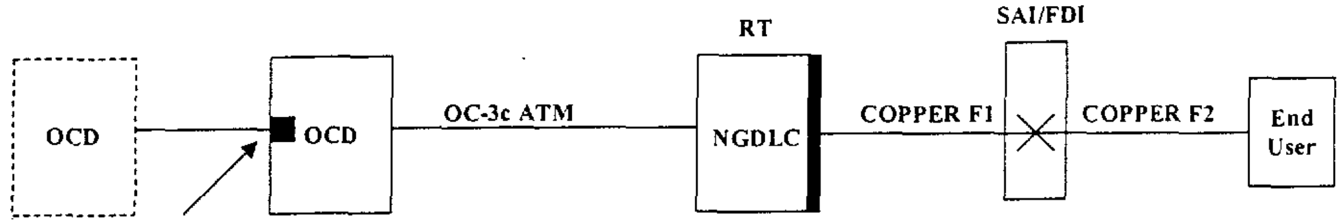


Description:

This photograph is of a standard ADSL Digital Line Unit (ADLU) card being placed into a slot within the NGDLC system. Litespan 2000 channel bank consists of 56 slots for the placement of line cards. Thus, taking the cabinet example mentioned previously (with a maximum capacity of three DSL channel banks per cabinet), there would be capacity to serve three channel banks times 56 slots or 168 total slots worth of DSL traffic. As is referenced in my testimony, the ADLU card is the only line card currently available for use with this system. The ADLU card provides both a POTS and ADSL service functionality. At the present time, the ADLU card is a two-port card – meaning that it can provide two combined ADSL/POTS services per card. Forward looking, pending vendor enhancements, the ADLU card will be a four (4) port card. Thus, forward looking, a standard cabinet will be capable of serving 168 slots times 4 ports per card or 672 ADSL customers.

Schedule CJB-4

Diagram: Provisioning ADSL with SBC Broadband Service



<u>CLEC OCD PORT (C)</u>
Offered in two versions:
(1) OC-3c
(2) DS3

<u>PERMANENT VIRTUAL CIRCUIT (B)</u>
Offered in three versions:
(1) UBR
(2) CBR (Limited to 96 Kbps)
(3) Both UBR + CBR

<u>COPPER FACILITIES (A)</u>
Offered in two versions:
(1) Line Shared
(2) Dedicated Data Only

<u>Description:</u>

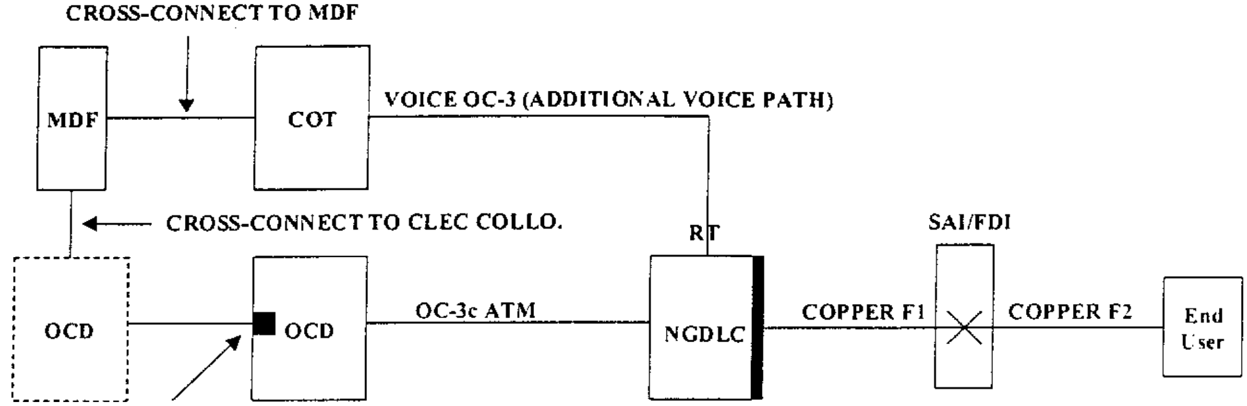
This diagram illustrates how an ADSL service would be provisioned using the SBC Broadband Service over the Project Pronto network architecture. At a high level, the CLEC is provided three network components that are integrated to one another creating the end-to-end service. As is further addressed in my testimony it is not technically possible to offer any of these three components as individual discrete network elements – the end-to-end service configuration is the only technically feasible configuration with this architecture.

The three components that are used with this end-to-end offering are the following: (1) the use of copper facilities from the end user location to the backplane of the NGDLC system placed within the RT site, (2) the use of a Permanent Virtual Circuit ("PVC") that provides transport through the packet switched portion of the Project Pronto architecture from the RT to the OCD, and (3) the use of the OCD to aggregate each individual CLEC's traffic to their collocation arrangement in the serving wire center.

CLECs are provided several options in establishing the end-to-end service. The use of the copper facilities form the end user customer premises to the RT site is provided in either a line shared version (where the CLEC is providing the ADSL service on the same facility as the SBC ILEC provided voice) or in a dedicated data version (where the CLEC is provided the use of the full copper facility). Likewise, the PVC is provided in three different manners. CLECs have the option of establishing (1) an Unspecified Bit Rate ("UBR") PVC (such as for the purposes of providing high speed internet access), (2) a Constant Bit Rate ("CBR") PVC (limited to 96 kbps which for example could be used to provision voice over DSL ("VoDSL"), and (3) Both a UBR and CBR PVC for that particular end user (in this case a CLEC could use the UBR PVC for high speed internet access and the CBR PVC for VoDSL). Finally, the OCD is provided to CLECs to aggregate incoming traffic from RT sites to the CLECs collocation arrangement. The use of the OCD is provided for at two different speeds, (1) at an OC-3c speed (which may serve upwards of 4000 end user PVCs) and/or (2) at a DS3 speed (which may serve upwards of 1000 end user PVCs).

Schedule CJB-5

Diagram: Combined Voice and Data Broadband Service



CLEC OCD PORT (C)
Offered in two versions:
(1) OC-3c
(2) DS3

PERMANENT VIRTUAL CIRCUIT (B)
Offered in three versions:
(1) UBR
(2) CBR (Limited to 96 Kbps)
(3) Both UBR + CBR

COPPER FACILITIES (A)
Offered in two versions:
(1) Line Shared
(2) Dedicated Data Only

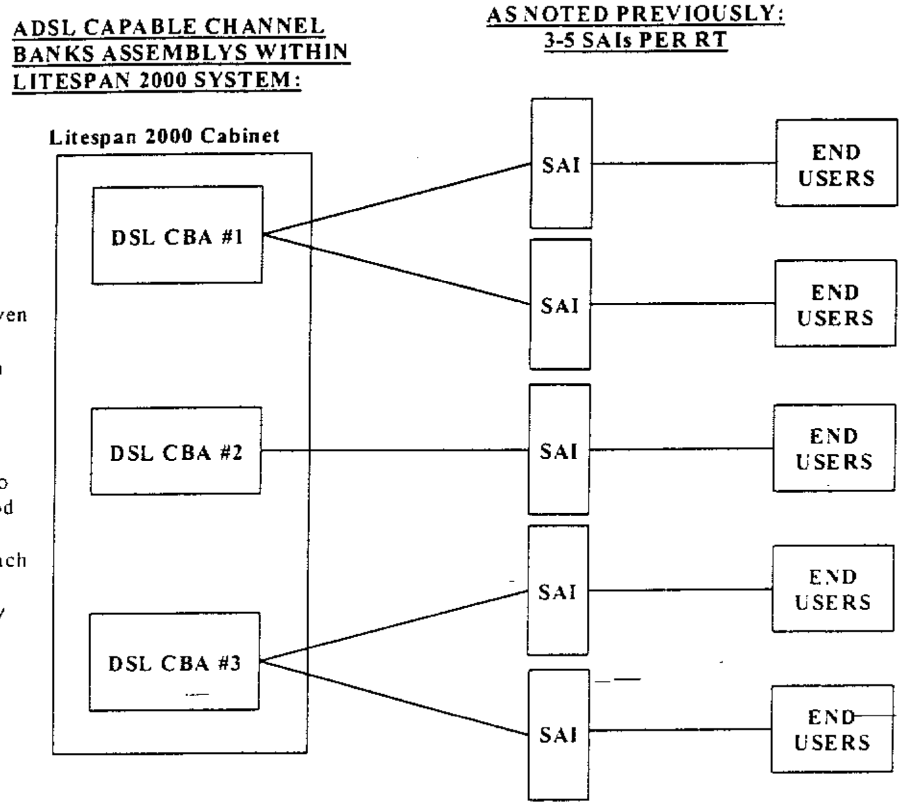
Description:

This diagram illustrates the Combined Voice and Data Broadband Service. In this instance, the data path is provisioned in exactly the same manner as mentioned previously. However, in addition to the data path, with this service option, CLECs are provided access to the voice portion of the Project Pronto architecture. This is done by taking the voice signal from the Central Office Terminal ("COT") and cross-connecting the voice to central office Main Distribution Frame ("MDF"). From the MDF CLEC can gain access to this voice signal in a like manner to any other unbundled loop.

Schedule CJB-6

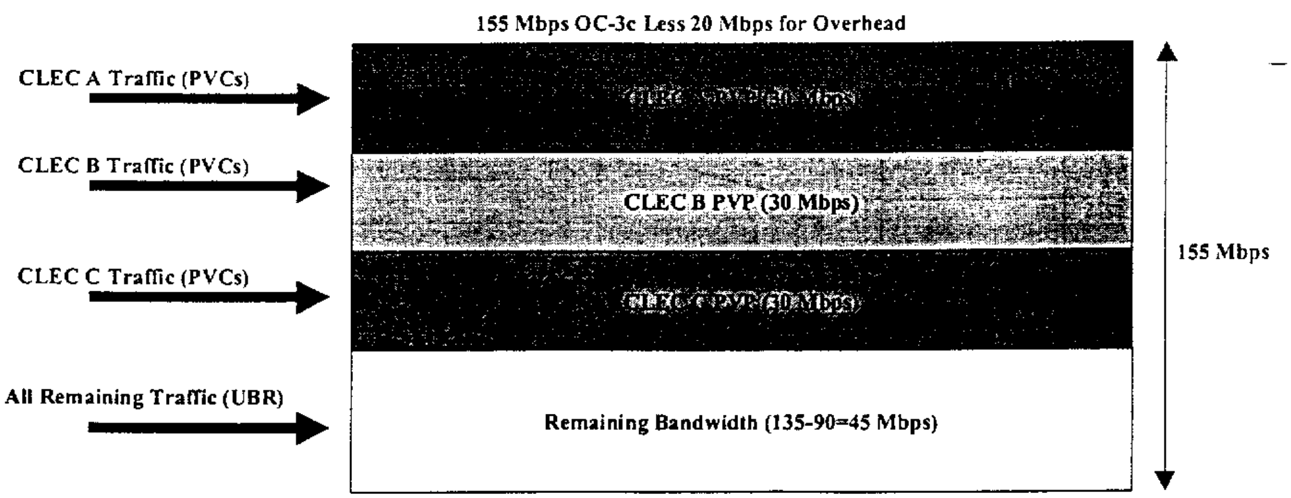
Diagram: Wiring of Specific Channel Banks to SAI Locations

- As illustrated to right, each DSL CBA in a given RT site is not wired to each SAI out of a given RT.
- Therefore, a CLEC, in order to utilize a PVP to serve each neighborhood from a given RT site, would need a PVP in each CBA. As mentioned previously, there is only one PVP per CBA.



Description: As indicated in my direct testimony there is currently only one PVP possible per ADSL capable channel bank in a Litespan 2000 system. Therefore, a CLEC – in order to provide a PVP given that there is one PVP per channel bank – would have to be allocated the full capacity of a channel bank. This diagrams illustrates at a high level the fact that one channel bank in a standard Litespan cabinet does not service all of the SAI locations subtending that particular RT. For example, as illustrated DSL CBA #1 in this diagram services the first two (of five) SAIs subtending the RT location in this diagram. Therefore, if a CLEC were to desire a PVP that had the capability to reach all of the end users served out of an RT location they would need a PVP in each and every channel bank. Again, due to the fact that only one PVP is available per bank at this time – this would require the CLEC to be dedicated all of the channel banks in this system.

Diagram: Impact of multiple, dedicated PVPs upon available bandwidth

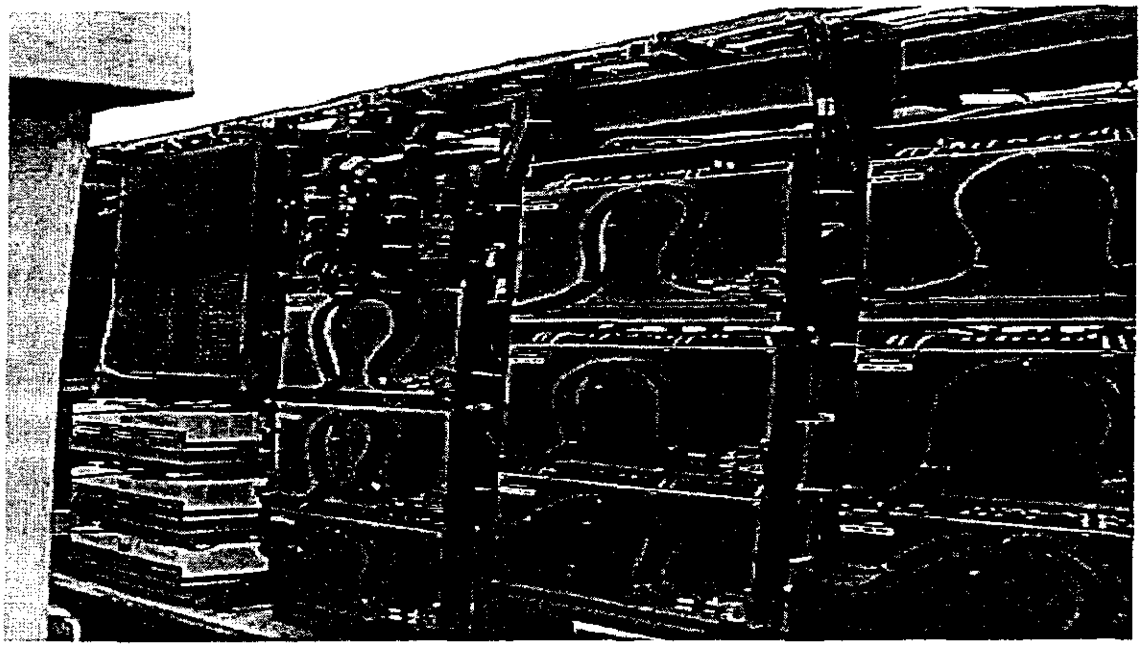


Description: This diagram is intended to demonstrate the bandwidth impact of providing dedicated PVPs to CLECs. The box is intended to represent the full 135 Mbps of capacity available in a given Litespan system (155 Mbps less 20 Mbps for overhead and element management systems). As shown, if CLECs A, B and C are dedicated 30 Mbps PVPs, there would only be 45 Mbps remaining for all of the other CLECs traffic (beyond CLECs A, B and C). Thus, all of the remaining traffic would be forced to share this 45 Mbps of remaining bandwidth. Lacking the dedicated PVPs – all end users would be sharing the full 135 Mbps pipe. Thus, the end result is that those customers – not being serviced by a CLEC provisioned a dedicated PVP would receive a lower speed service than otherwise would be possible.

Furthermore, the PVP solution currently being developed by Alcatel to offer multiple PVPs per channel bank would still require a CLEC to have one PVP in each channel bank. Under this scenario, while a CLEC would not have to be dedicated an entire channel bank to service those end users with a PVP – the CLEC would still be required to purchase at a minimum three PVPs (one in each channel bank) to gain ubiquitous coverage of an RT serving area. Again, this could impact available bandwidth if you consider that now one CLEC may need at a minimum three PVPs at a dedicated, fixed amount of bandwidth.

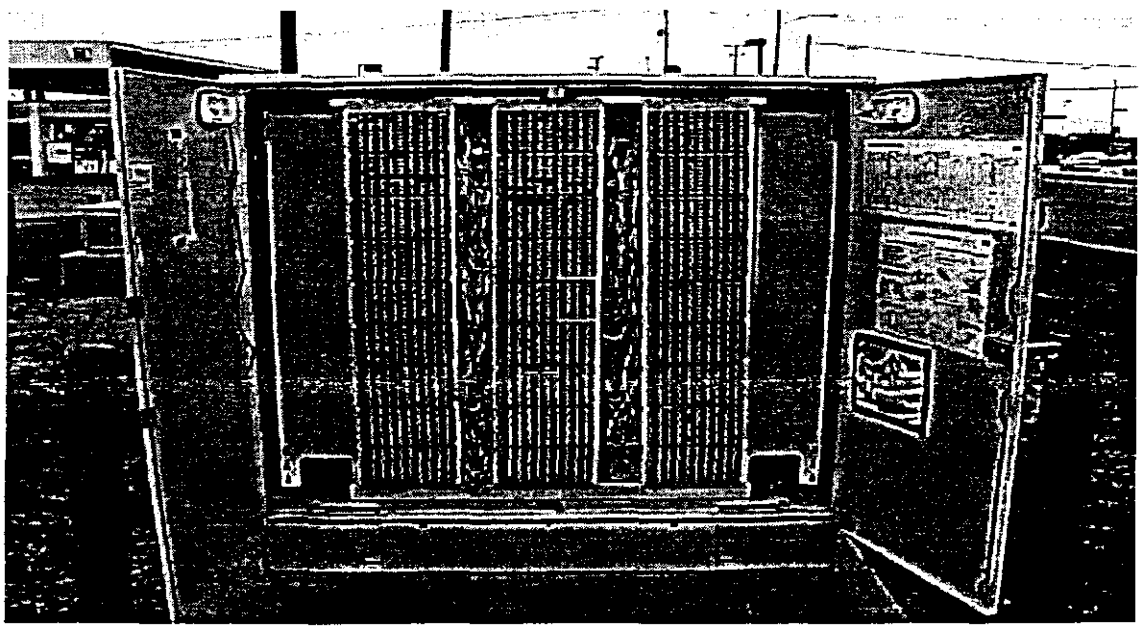
Schedule CJB-7

Photograph: Backplane of a Standard Litespan Cabinet Location



Description: This photograph shows the backplane of a standard Litespan 2016 cabinet location. As shown, there is no physical means for craft personnel to access a sub-loop component from this "spliced" system.

Photograph: Standard SAI



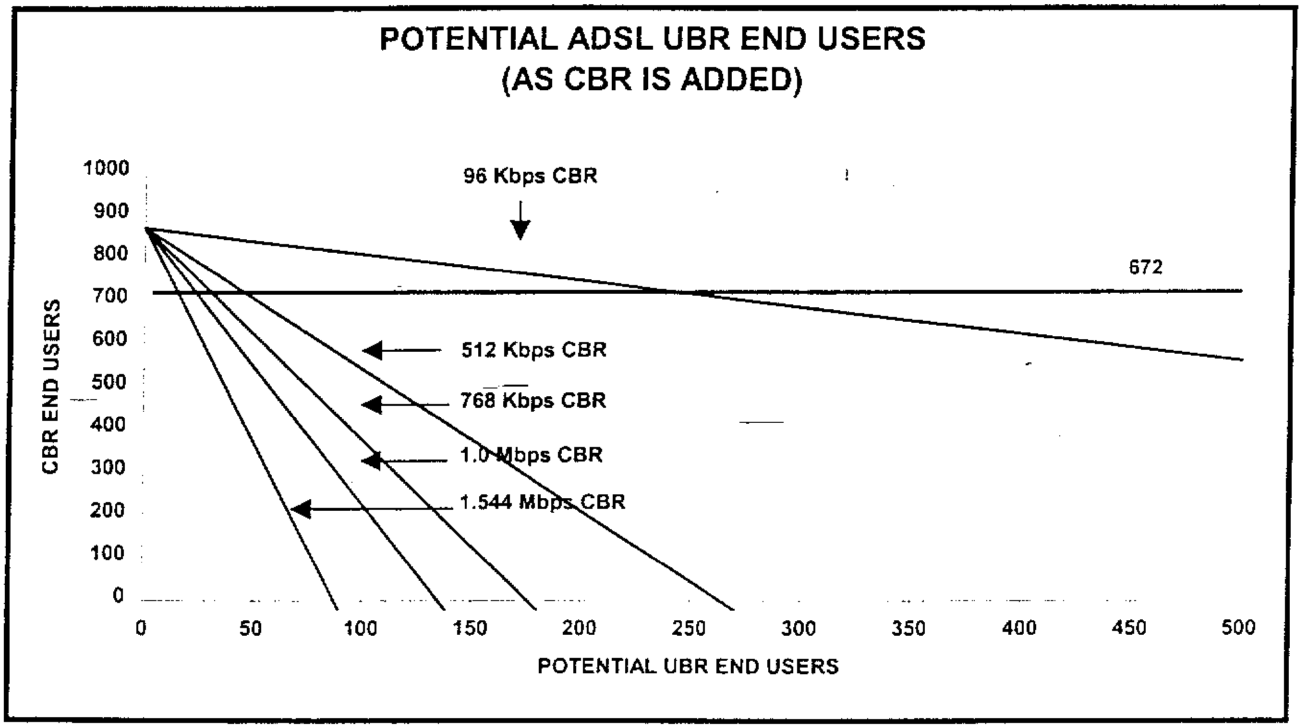
Description: This photograph shows a standard SAI location in the outside plant portion of the network. As shown, each individual line has an appearance in this location that is accessible by craft personnel. This is in contrast to the hard-wired or "spliced" backplane of an NGDLC system. This is typically the first accessible point of access to an unbundled sub-loop as defined by the FCC.

Schedule CJB-8

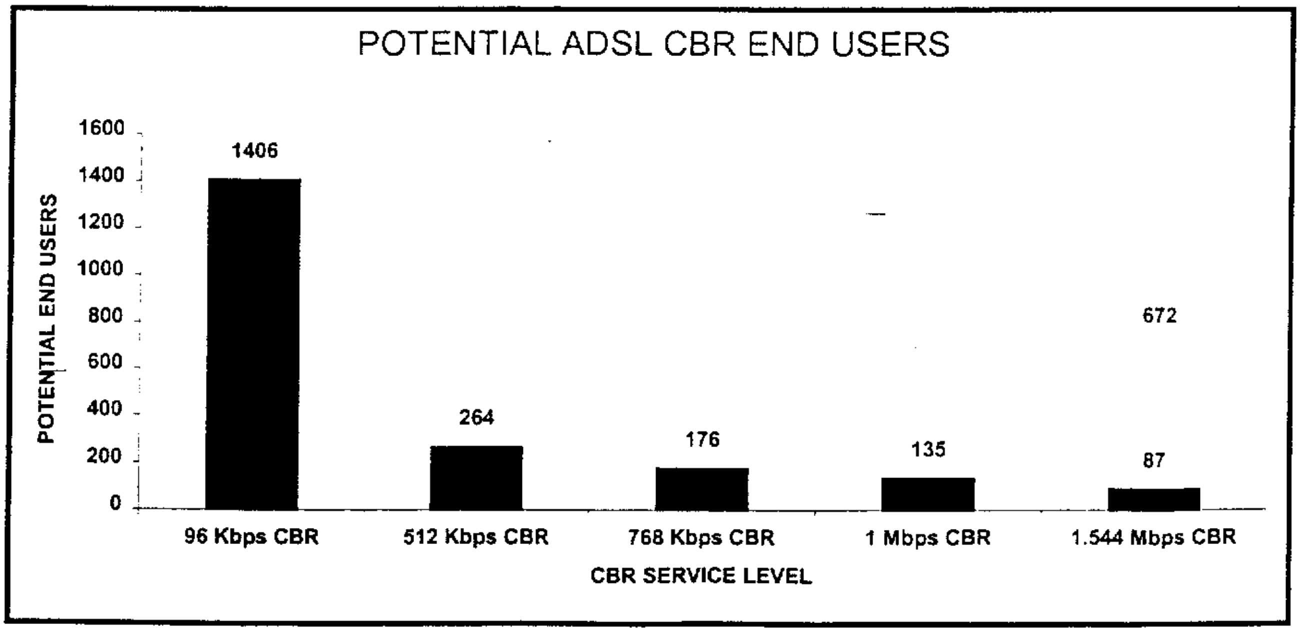
__Description:__ This chart is intended to illustrate the impact of adding CBR service at varying speeds (under a basic set of assumptions) to the availability of standard UBR service. Recall that UBR service is typically used for residential high speed internet access – the intended goal of SBC's Project Pronto deployment whereas CBR is typically used for business class DSL services.

As shown, the number of customers capable of receiving UBR service is greatly diminished as more CBR customers are added. For example, as shown if SBC were to provide a 1.544 Mbps CBR (comparable to a T1 to a business location) once 100 of which CBR services were provisioned there would be no remaining capacity to service any UBR customers.

Graph #1: Impact of dedicated CBR service on UBR capacity at varying speeds.



Graph #2: Maximum number of CBR customers at varying speeds that could exhaust all capacity at



Description: This graph illustrates what the maximum number of CBR services at varying speeds could be provisioned before exhausting all capacity in a given RT site. Although an RT site can only support, generally, 672 customers as shown a 96 kbps CBR service provides quite a bit of remaining capacity for UBR service. However, high speed CBR services (such as those necessary for SDSL) could exhaust the RT capacity rapidly. For example, with a 512 kbps CBR offering RT capacity could potentially be exhausted after approximately 264 services were provisioned under a basic set of assumptions.

Further, due to this reduced bandwidth available for UBR service, there is a also a detrimental impact on the quality and speed of service that could be provided to consumers. For example, because UBR end users share the same "available" amount of bandwidth – if less bandwidth is shared (because it is dedicated to CBR service) – then those end users share less bandwidth – which indirectly leads to less potential speed and grade of service for that end user.

As illustrated in Schedule CJB-6, a PVP offering could have a comparable affect.